DOCUMENT RESUME

ED 038 916 HE 001 461

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TITLE Research on Higher Education: Current Studies and Suggestions for the Future.
INSTITUTION Cornell Univ., Ithaca, N.Y. Center for Research on Education.
PUB DATE Feb 68
NOTE 19p.; Remarks presented at the Center for Research on Education, Cornell University, Ithaca, N.Y., February 20-21, 1968

EDRS PRICE EDRS Price MF-$0.25 HC-$1.05
DESCRIPTORS Administrative Organization, *Creativity Research, *Educational Research, *Higher Education, Interaction, Intergroup Relations, *Research, *Universities

ABSTRACT

Although there is an overwhelming amount of information on higher education, there are relatively few studies that seek to formulate a systematic theory grounded on empirical observation. This report deals primarily with those studies that are creating new knowledge and are moving toward formulation of some distinctive theories. Studies reviewed include those that investigate: (1) factors that help generate intellectual creativity; (2) college and university organization; (3) professional relationships and the role of professional organizations inside the universities; (4) the normative structure of the scientific community and its patterns of communication; (5) the interrelations between individual universities, and national university systems; and (6) interrelationships between institutions of higher education and national societies. (AF)

ED038916

RESEARCH ON HIGHER EDUCATION: CURRENT STUDIES AND SUGGESTIONS FOR THE FUTURE

Some Informal Remarks Presented at the Center for Research on Education, Cornell University, February 20-21, 1968.

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HE001 461

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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The literature on higher education is overwhelming. But while flooded with conference reports, memoires, and perceptive comments, the studies which seek to move toward a relatively systematic theory, grounded in empirical observation, are surprisingly small in number. This research lag has become increasingly apparent in recent years,* and, it seems, is on the way to becoming filled. At this point it seems particularly important to reevaluate some of the recent research and to consider some of the more promising avenues for future investigation.

The most popular concern, presently, is student political activeness. Some of the best work on the subject has been conducted from the perspective of political sociology,** and fits into the emerging body of theory on political participation, collective behavior, and voting behavior. The values and personality structure of students have also been investigated in some detail in the last decade; work in this area ties in nicely with more general studies of socialization and attitude change. But while politics and personality changes are inextricably part of higher education, the distinctive aspect with which

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*Just a few of the recent observers who have come to this same conclusion are William E. Moran, "The Study of University Organizations," The Journal of Higher Education, Vol. XXXIX, No. 3 (March, 1968), 147-51; Charles E. Bidwell, "The School as a Formal Organization," in James G. March, ed., Handbook of Organizations (Chicago: Rand McNally, 1965); Talcott Parsons and Gerald M. Platt, "Some Considerations on the American Academic Profession," Minerva, forthcoming.

**Seymour Martin Lipset, ed., Student Politics (New York: Basic Books, 1967); Daedalus, special issue on "Students and Politics," Vol. 97, No. 1, Winter 1968.

I shall here be most concerned is the creation of knowledge. Around this aspect of higher education has developed a body of investigations that, we may suggest without undue optimism, are building on one another and moving toward some distinctive theories. You asked me to review some of the more recent work in this area, discuss some of my own studies, and suggest new directions for exploration. I shall begin with the smaller units of analysis and move to the larger ones.

What appears to me to have been the most striking line of investigation at the psychological level is the probing of factors which help generate intellectual creativity. Ann Roe's stimulating work on scientists has called attention to the interaction between individual and social background factors leading to genuine creativity. In this same sphere, Bernice Eiduson's recent book is far less satisfactory. However, no one thus far has been able to achieve a systematic integration of empirical studies of scientists such as these with more general theory on cognitive behavior, such as arises out of the work by Jean Piaget, Jerome Bruner, and others.* To move beyond the mapping of developmental stages to the isolation of factors which contribute to creativity at the college, graduate school, and adult level, and to integrate the abstract and empirical levels of research, are central task's for future psychological studies.

On a small group level, The Organization of Scientists, by Donald Pelz and Frank Andrews at the University of Michigan, is an outstanding recent contribution. With their findings available, a number of useful studies could be done examining, in both experimental conditions and natural settings, the consequences of interaction among individuals with similar and differing intellectual orientations. We need, for example, to examine in other contexts, the finding which suggests that the most creative individuals have

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*Since preparing these remarks, I have been pleased to learn of the Center's important work in this general area.

both some interaction with a colleague of highly similar orientation and more extensive interaction with others whose perspectives are sufficiently different to provide stimulation. One can see a rough congruence between this finding and the phase movement and role differentiation ideas of small-group research, but these matters could be tested further with small groups experiments. An intermediary level of experimentation, closer to the natural setting, would be to persuade several teams of researchers in large research institutes to try themselves to restructure their interaction for a year or so and to record their own reactions to the changed conditions. The same individuals could then be switched around after a certain period of time. Not every scientist would want to restructure his interaction patterns in this way, but particularly in a new institute or with newly arrived members at an established institution., it should be possible to find some interested participants.

The work of Gerald Gordon, formerly at Chicago and now at Cornell, overlaps with that of Pelz and Andrews. His finding that less than ideal conditions may lead to greater creativeness than ostensibly more satisfactory conditions certainly deserves further examination. Some psychological findings such as those of McClelland on achievement orientation might be construed as providing some support for this, but most such work is based on constraint in the early years and not among adults. Then too, this finding needs to be examined

using more "objective" measures of constraining research conditions than those available to Gordon. Simply to infer from an individual's statement that his working conditions are in fact less adequate than those of others who say they are more satisfied leaves a wide gap for what W. I. Thomas called the "definition of the situation". We all know too many eminent men who have left apparently satisfactory job surroundings because of dissatisfaction while others have remained there complacently; but in order to place this kind of finding in a broader context, it would be useful to obtain subjective as well as more objective information on the conditions of work during the entire careers of intellectuals of various sorts. That the finding may well be valid for the early but not the later stages of a man's career would seem more congruent with knowledge deriving from more general social-psychological research. Then, too, it might be more valid for applied than basic research. A very nice possible study would review the available literature on this particular problem to specify the limits under which Gordon's findings may in fact obtain. Further empirical investigation of these relationships in various fields is also called for.

On a sub-institutional level, I should mention the study recently completed by Paul Lazarsfeld and Sam Sieber at Columbia on the organizational structures of educational research at institutions throughout the country. It is most illuminating concerning the contributions which can be made by large-scale survey research to

educational investigations.

Intersecting with these concerns are the series of studies by Norman Kaplan at the University of Pennsylvania on the roles of research institute directors, particularly useful because of Russian and European comparisons.

At the institutional level, there is always room for studies to bring up to date the work of Robert Knapp and his colleagues at Wesleyan. By examining the relative productivity of different undergraduate and graduate institutions, using such measures as Ph.D. production, later research, and so forth, we can move toward a more systematic interpretation of institutional cultures which provide a context for the social-psychological studies.

I should say a few words at this point about ongoing studies of university and college organization. Edward Gross at the University of Washington is completing a highly interesting investigation of about 70 American universities. He has focused on the relative emphasis on what he calls different "goals" in each of these institutions. His inclusion of some forty-odd "goals", however, is so broad that many organizational theorists would disagree as to the application of the term. Nevertheless, whether or not one considers academic freedom an institutional goal, you may be interssted, as was I, to learn that it is considered by American university professors and administrators as one of the most important things with which their institution should be concerned--more so than research, teaching, service or anything else. Another striking finding, although it has

still not been thoroughly analyzed, is that there is remarkably little disagreement between administrators and faculty members within these institutions with regard to the general goals toward which they should be oriented -- basic vs applied research, government involvement, teaching goals, etc. On the other hand, there is enormous disagreement between institutions. This suggests that mobility has become so great that individuals radically at odds with an institution's particular orientation will tend to move rapidly to another which they find more congenial. But it also underlines the importance of specifying very carefully the types of institutions about which one is speaking when interpreting findings about either professors or administrators. Like questions from other national studies, Gross' list of goals should no doubt be administered in a few more years to new samples of institutions so that changes may be plotted. And, with the national norms now established, it will be possible to utilize this questionnaire to place any given institution on the spectrum of national institutions.

Another large study of university organization is being conducted by Amos Hawley and Walter Boland of Vanderbilt and Bowdoin. Only a brief report has appeared thus far, but they have collected large quantities of interesting data on the organizational structure of liberal arts colleges.

Next is a combination of studies involving Talcott Parsons and Gerald Platt at Harvard, and Peter Blau and myself at the University of Chicago. Parsons and Platt are primarily concerned with questions

of professional relationships and the role of professional organizations inside universities. They are examining the extent to which reference groups of faculty members are influenced by professional or other reference groups. Their guiding ideas and some preliminary findings will appear in one of the forthcoming issues of Minerva.

The empirical data with which they and we are working derives from a questionnaire sent to some 5000 faculty members at 115 institutions. The sample includes virtually all disciplines, although not every discipline at every institutition. The questionnaire includes items dealing with institutional goals, centralization of decision-making, involvement of various members of the faculty and administration in personnel, budgeting, and curriculum decisions, professional vs. local orientations, publication history, involvement in research projects, and personal background. In the next months we shall expand the sample to some 250 institutions and mail a questionnaire to probably 5 to 10 administrators in each of these. We shall thus collect further information about inter-divisional and inter-departmental relationships, and the role of the president, deans, provost, department chairmen, and faculty in such decisions as budgeting, hiring of personnel, and creation of new departments and schools. Although this is a joint Harvard-Chicago study in the sense that we are collecting data together to minimize costs, the interests of Blau and myself differ from those of Parsons and Platt. We are primarily concerned with examining the impact of organizational characteristics

of institutions--size, endowment, type of control (private, public), centralization of decision-making, etc.--conceived as independent variables, to two types of dependent variables: eminence of research and structural innovation. We are using three types of measures of eminence of research. The first is derived from our faculty questionnaire: the number of books and articles produced by each faculty member. These can be aggregated for department, division,and institution. Second is the number of citations to each man in the Science Citation Index. Third are the departmental rankings compiled by the American Council of Education. Structural innovation is of interest to us only if it is built around a new intellectual development. We are not particularly concerned about how institutions innovate with parking lots or garbage collection procedures. Even though some observers of the contemporary multiversity may feel that concern over parking lots is the only tie uniting the faculty, the type of structural innovations we have in mind are new research institutes--such as this one here at Cornell--new academic departments, new schools and divisions, and so forth. Some hypotheses guiding our work on innovations are presented in a paper of mine that Tom Lodahl tells me will appear in the June Administrative Science Quarterly. We have propositions about institutional characteristics at one point in time--such as more decentralized institutions in competitive situations are more likely to innovate--and others involving changes over time--for example, institutions seeking to upgrade themselves rapidly, if they are to be successful, must develop reasonably centralized decision-making structures. But,

institutions (or departments within institutions) operating at a high level of quality, may best maintain their position by granting a good deal of autonomy to the faculty. Although it will be a few more weeks before any of our findings will be available, Tom Lodahl and Bill Starbuck still wanted me to come near the beginning of your semester. I shall reply to any questions that you wish to raise about the study at the end of these remarks.

Another level of research focuses on what we might call the scientific community: it is to some degree circumscribed by disciplinary professions but not entirely so; it overlaps with the national university system but exceeds its bounds; it goes back in time as well as forward into the future. The most systematic work on the normative structure regulating this community has been done by Robert K. Merton at Columbia. In his doctoral thesis he investigated the congruence between ascetic Protestant religion in seventeenth century England and the values of science, thus extending the Weber thesis from capitalism to science. In numerous subsequent papers, he has explored the importance of such norms as universalism, organized skepticism, "communism", and disinterestedness. He further stressed the importance of an institutionalized reward structure for motivating discovery. The community's normative concern with rewarding original contributions is used imaginatively to interpret the numerous battles for priority in the case of multiple discoveries. Merton's last book, <u>On the Shoulders of Giants</u>, (or <u>OTSOG</u>), despite uneven receptions by reviewers with uneven senses of humor, should be read as an antidote to the emphatically unsmiling reports produced in industrial quantities by certain educational researchers.

A number of recent studies have built upon Merton's earlier contributions. Bernard Barber, also at Columbia, analyzed the norms of science adding rationality and emotional neutrality, and perceptively discussing institutional bases for resistance to innovation. Warren Hagstrom at the University of Wisconsin conducted interviews with scientists in several types of institutional settings to probe the ways they tie in with the rest of the scientific community. He also has many interesting observations on structural innovations in universities and the changing role of research institutes. Norman Storer, at the Social Science Research Council, in The Social System of Science, has very skillfully integrated Merton's work on normative relationships with more general sociological theory on the social system as well as showing how exchange theory can link these several levels of analysis. Important theoretical contributions can be made here by examining further the interrelationships between the values and norms of an intellectual community, the structural characteristics of institutions, and the contributions of individuals. Exchange theory, I feel, will help integrate a number of disparate traditions of research on these many topics. I have explored some of the directions in which we can go beyond the contributions of Homans and Blau in a volume coming out in another month or so called Community Structure and Decision-Making: Comparative Analyses, which, despite its title, has helped clarify our thinking at Chicago about university organizational questions.

Studies carried out in conjunction with Robert Merton, by such Columbia students as Harriet Zuckerman, Diana Crane, and Steven and Johnathan Cole, have investigated imaginatively such matters as the norms of name ordering, used as an indicator of changing collaborative patterns among Nobel Prize winners as well as more mundane scientists, the functions and dysfunctions of stratification in science, the consequences of reviewing contributions anonymously, and many other topics.

Closely related to the norms of the scientific community are its patterns of communication. One way of studying communication patterns that has been used with no little success is to focus on the basic unit of scientific communication: the professional journal. Derek Price at Yale and Herbert Garfield at his Institute for Scientific Information in Philadelphia, among others, have been able to suggest a new means for writing the history of science with trees sprouting up from computerized citation counts. The new methods they have developed for using the Science Citation Index to provide more rapid communication among specialists is also leading to better understanding about the types of communication most conducive to genuine discovery. Using techniques such as these, hitherto impossible because of the necessity for a large-scale computer, differences across disciplines, within disciplines, within various subareas, differences between eminent and not-so-eminent men, differences

across countries, and over time, can be examined with far greater precision than has been possible in the past. Thus far, no one has systematically related the fragmentary results which have emerged from studies of this nature to more general institutional analyses of organizational characteristics, their quality, occupational mobility patterns of men, overlapping relationships among "schools" of researchers, and so forth--all of these remain fascinating areas for future investigation.

The next level of analysis is that of the interrelations between individual universities and the ways in which they operate as systems. In his stimulating studies, Joseph Ben-David, of the Hebrew University in Jerusalem, has stressed the importance of inter-relationships for the maintenance and improvement of quality in particular sub-fields. His work on nineteenth-century physiologists in Germany, France, England, and the United States complements the studies of Merton and his students on the importance of contact with eminent men for continuation of eminence. Ben-David has pointed out that if sufficient job opportunities do not exist for a man's disciples in a particular area, it is far less likely that his ideas will be elaborated. In this way, he suggests, the second-rate institutions in a university system, national or even inter-national, are just as important as the most eminent. For without the second-level institutions to provide jobs for large numbers of men in a new field, and to provide bases for competition among them from which the most competent

can later be selected to return to the first-rate institutions, eminence would be much harder to perpetuate. In the same way, these loose relationships between a number of competing institutions can provide institutional support for the formulation of innovations—both intellectual and structural. In my own doctoral dissertation on social research in nineteenth-century France (forthcoming) I stressed the importance of marginal, and oftentimes even ephemeral, institutions for nurturing important and radically new intellectual developments. In a highly centralized university system like the French, innovations can not be institutionalized within the official structure without some difficulty. Still, people with sufficiently powerful ideas, in combination with minimal institutional support, can become centers of competition with the established system, and through competition with it, generate institutional innovation.

A number of articles have appeared in Minerva in the last few years commissioned by its cosmopolitan editor, Edward Shils, which begin to provide some monographic information on national university systems, not only in Western Europe, but in Africa, Asia, and Latin America as well. A slightly more integrated international study is presently being conducted by OECD coordinated by Ladislav Cherych in Paris. The Minerva, OECD and other international studies may begin to provide the kinds of information on the basis of which it will be possible to take ideas about centralization, stratification, and differentiation of national university systems and apply them to

to large numbers of systems. In this way, quantitative comparisons of a systematic sort will become possible. Our American university work is conceived as the first stage for such a study.

Moving outside the interrelationships among universities to those between institutions of higher education and national societies, one finds an important body of literature which has examined economic development, political change, religious modifications,and other general social changes in terms of their impact on universities. C. Arnold Anderson at the University of Chicago has done some very stimulating work, often in conjunction with his wife, Mary Jean Bowman, investigating the impact of economic development on educational matters and vice versa, in the present and past United States, Europe, and developing countries. Joseph Ben-David's volume on the professions in the Current Sociology series is also a sophisticated contribution showing how systematic quantitative research can be used to test some intriguing hypotheses. A number of productive studies could be done using the same kind of approach as this and focusing on the developing countries. Those of you at Cornell who undertake studies of this sort will have to compete with a stream of suggestive Ph.D. theses emerging from the Chicago Center for Comparative Education.

Studies of the relationship between national values and character structure and styles of intellectual activity, on the other hand,

are almost totally lacking. Edward Shils' concluding article in Theories of Society offers a number of suggestive ideas, but it is in no way a systematic study. As comparative international studies are revolutionizing such fields as political party organization, voting behavior, working class organization, and community-decision-making, it is certainly time for this same perspective to be applied to intellectual activities as well.

On another international level, that of the interchanges between nations, a great deal of concern has been expressed in such journals as Minerva for the problems of underdeveloped, or less developed, countries which lose quality scientists to the more developed areas. Studies of these problems are well under way at Columbia and the University of Chicago, but most of the work thus far has been toc concerned with simply how to make people return to their country of origin instead of systematically examining the consequences for each of the countries of international exchanges of different sorts. Hopefully, some of the extensive support available for work on this policy-related problem will also be used to compare various national styles of investigation and thinking.

From our proposition that the greater the competitiveness within a system, the more eminent its intellectual products and the greater the innovativeness of the system as a whole, we may derive a policy statement with which it seems fitting to conclude:

ceteris paribus, the establishment of Cornell's Center for Research on Education will lead to greater competition throughout the national and international contemporary university system and to a general improvement in eminence and innovativeness.

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